

We claim:

1. A method for providing streaming information from a service provider (17) to a mobile terminal (40), said method comprising the steps of:

buffering a first portion of an information stream (25) in a first service input buffer (35) as buffered data (27);

transmitting said buffered data (27) as a transmission burst (53) in a time-slicing signal (51), said transmission burst (53) having a duration smaller than the duration of said portion of said information stream (25);

powering-up a receiver (41) in the mobile terminal (40) in synchronicity with said transmission burst (53) such that the mobile terminal (40) is powered-up when said transmission burst (53) is being transmitted; and

buffering said transmission burst (53) in a receiver input buffer (45).

2. A method as in claim 1 wherein said service input buffer (35) comprises at least one member of the group consisting of: a first-in-first-out (FIFO) buffer, an elastic buffer, a ring buffer, and a dual buffer having separate input and output sections.

3. A method as in claim 1 wherein said buffered data (27) comprises at least one of: a predetermined amount of said information stream (25) and an amount of said information stream (25) received during a predetermined time interval.

4. A method as in claim 1 wherein said step of powering-up said receiver (41) occurs a specified interval of time prior to said step of transmitting.

5. A method as in claim 4 wherein said specified interval of time comprises a member of the group consisting of: a bit-rate adaptation time, a receiver switch-on time, and a receiver acquisition time.

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6. A method as in claim 5 further comprising the step of returning said receiver (41) to said powered-down mode in response to the setting of a power-down flag in said receiver input buffer (45).
7. A method as in claim 6 wherein said power-down flag is set in response to said receiver input buffer (45) reaching a specified maximum byte count.
8. A method as in claim 1 further comprising the step of powering-down said receiver (41) a predefined interval of time subsequent to said step of powering-up said receiver (41).
9. A method as in claim 8 wherein said predefined interval of time comprises a time interval greater than said duration of said transmission burst.
10. A method as in claim 8 further comprising the step of returning said receiver (41) to a powered-up mode in response to the setting of a power-up flag in said receiver input buffer (45).
11. A method as in claim 10 wherein said power-up flag is set in response to said receiver input buffer (45) reaching a specified byte count.
12. A method as in claim 1 wherein said step of transmitting comprises the steps of:  
encapsulating said buffered data (27) using a multi-protocol encapsulator (37) to form encapsulated data (29); and  
transmitting said encapsulated data (29) as said transmission burst (53).
13. A method as in claim 12 wherein said multi-protocol encapsulator (37) conforms to standard EN 301192.
14. A method as in claim 12 further comprising the steps of;  
obtaining said transmission burst (53) from said receiver input buffer (45); and  
stripping encapsulation from said transmission burst (53) to form received data.

15. A method as in claim 14 further comprising the step of sending said received data to an application processor (47) for conversion to an information data stream (49).

16. A method as in claim 1 further comprising the steps of:

buffering a portion of a second information stream (26) in a second service input buffer (36) as second buffered data (28); and

transmitting said second buffered data as a second transmission burst (93), said second transmission burst (93) having a duration smaller than the duration of said portion of said second information stream (26).

17. A method as in claim 16 further comprising the step of multiplexing said transmission burst (53) with said second transmission burst (93) to produce a time-division multiplexed signal (91).

18. A method as in claim 17 further comprising the step of buffering said first encapsulated data (121) and second encapsulated data (123) in a network operator input buffer (131).

19. A mobile terminal (40) suitable for receiving streaming information (25) provided by a service provider (17), said mobile terminal comprising:

a digital broadcast receiver (41) for receiving at least a first portion of said streaming information (25) as a transmission burst (53);

means for powering up said digital broadcast receiver (41) at a pre-determined powered-up time;

a receiver input buffer (45) for storing said transmission burst (53); and

means for powering down said digital broadcast receiver (41) at a pre-determined powered-down time.

20. The mobile terminal as in claim 19 wherein said pre-determined powered-up time occurs a specified period of time subsequent to said pre-determined powered-down time.

21. The mobile terminal as in claim 19 wherein said pre-determined powered-up time occurs at the setting of a flag indicating an almost-empty byte count in said receiver input buffer.
22. The mobile terminal as in claim 19 wherein said pre-determined powered-up time occurs an incremental period of time prior to occurrence of said transmission burst.
23. The mobile terminal as in claim 22 wherein said incremental period of time comprises a member of the group consisting of: a bit rate adaptation time, a receiver switch-on time, a receiver acquisition time, and a bit-rate variation time interval.
24. The mobile terminal as in claim 19 wherein said pre-determined powered-down time occurs a specified period of time subsequent to said pre-determined powered-up time.
25. The mobile terminal as in claim 24 wherein said specified period is at least as great as said transmission burst duration.
26. The mobile terminal as in claim 19 wherein said pre-determined powered-down time occurs at the setting of a flag indicating an almost-full byte count in said receiver input buffer (45).
27. The mobile terminal as in claim 19 wherein said pre-determined powered-up time occurs an incremental period of time subsequent to transmission of said transmission burst (53).
28. The mobile terminal as in claim 19 further comprising an application processor (47) for converting said transmission burst (53) into an information data stream (49).
29. The mobile terminal as in claim 19 further comprising a stream filter (43) for stripping said encapsulation from said transmission burst (53).

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30. The mobile terminal as in claim 29 wherein said stream filter (43) comprises an Internet protocol (IP) filter.
31. A digital broadcasting system (100) comprising:
- an information service provider (101) for providing streaming information;
  - a transmitter system (130) for broadcasting at least a portion of said streaming information as a transmission burst (141), said transmitter system (130) including a service input buffer (111); and
  - a mobile terminal (40) for receiving said transmission burst (141), said mobile terminal (40) including a digital broadcast receiver (41) and a receiver input buffer (45) for buffering said transmission burst (141), said mobile terminal (40) further including means for powering down said digital broadcast receiver (41) at a pre-determined powered-down time.
32. The digital broadcasting system (100) as in claim 31 wherein a usage factor for said receiver input buffer (45) is a function of a usage factor for said service input buffer (111).
33. The digital broadcasting system (100) as in claim 31 wherein when turning on said digital broadcast receiver (41) for initially receiving a first transmission burst, a start-up time is controlled by said usage factor such that said digital broadcast receiver (41) receives said first burst with a minimum of delay.
34. The digital broadcasting system (100) as in claim 31 wherein the information service provider (101) provides at least one service via at least one information stream.
35. The digital broadcasting system (100) as in claim 31 wherein said pre-determined powered-down time occurs at the setting of a flag indicating an almost-full byte count in said receiver input buffer (45).

36. The digital broadcasting system (100) as in claim 31 wherein said mobile terminal (40) further comprises means for powering up said digital broadcast receiver (41) at a pre-determined powered-up time.

37. The digital broadcasting system (100) as in claim 36 wherein said pre-determined powered-up time occurs an incremental period of time prior to occurrence of said transmission burst.

38. The digital broadcasting system (100) as in claim 36 wherein said pre-determined powered-up time occurs a specified period of time subsequent to said pre-determined powered-down time.

39. The digital broadcasting system (100) as in claim 36 wherein said pre-determined powered-up time occurs at the setting of a flag indicating an almost-empty byte count in said receiver input buffer (45).

40. The digital broadcasting system (100) as in claim 31 further comprising an application processor (47) for converting said transmission burst (141) into an information data stream (49).

41. The digital broadcasting system (100) as in claim 31 further comprising a multi-protocol encapsulator (109) for encapsulating at least a portion of said streaming information.

42. The digital broadcasting system (100) as in claim 41 further comprising an Internet protocol (IP) filter for stripping encapsulation from encapsulated streaming information.

43. The digital broadcasting system (100) as in claim 31 further comprising:

- a second information service provider (103) for providing second streaming information; and

- a second service input buffer (113) for storing at least an interval of said second streaming information;

wherein said transmitter system (130) broadcasts the contents of said second service input buffer (113) as a second transmission burst (151).

44. The digital broadcasting system (100) as in claim 43 further comprising a multiplexer (133) for multiplexing said transmission burst (141) and said second transmission burst (151) such that said transmitter system (130) broadcasts said transmission bursts (141, 151) as a time-division multiplexed signal (137).

45. The digital broadcasting system (100) as in claim 43 further comprising a network operator input buffer (131).

46. A transmitter system (130) for transmitting streaming information, said transmitter system (130) comprising:

a service input buffer (111) for receiving the streaming information from a service provider (101); and

a digital broadcast transmitter (135) for transmitting said streaming information as bursts at a higher bit rate than the rate at which said streaming information is received from said service provider (101).

47. The transmitter system (130) as in claim 46 further comprising a multi-protocol encapsulator (109) for encapsulating the streaming information.

48. The transmitter system (130) as in claim 46 further comprising:

a second service input buffer (113) for receiving second streaming information supplied by a second service provider (103); and

a second multi-protocol encapsulator (109) for encapsulating said second streaming information.

49. The transmitter system (130) as in claim 48 further comprising a multiplexer (133).

50. The transmitter system (130) as in claim 47 further comprising a network operator input buffer (131).

51. The transmitter system (130) as in claim 45 wherein said digital broadcasting transmitter (135) is responsive to said service input buffer (111) such that if the amount of data stored in said service input buffer (111) meets a predetermined amount said digital broadcast transmitter (135) transmits said data stored in said service input buffer (111) as a transmission burst (141).

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